FARM BUSINESS MANAGEMENT

COMPUTERIZED PLANNING FOR GRAIN FARMS

Prepared by

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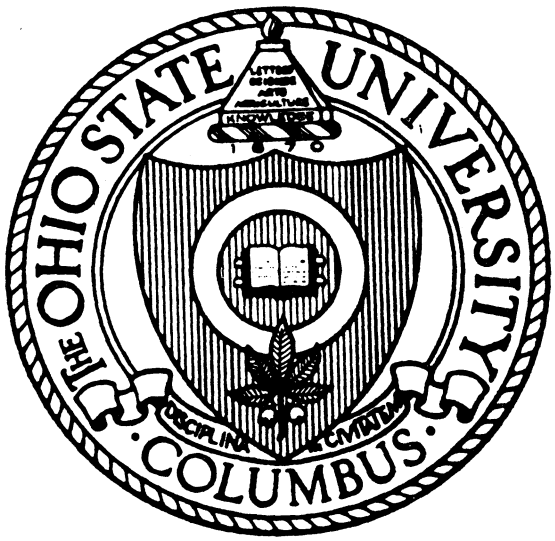


DEPARTMENT OF AGRICULTURAL ECONOMICS

THE OHIO STATE UNIVERSITY

COLUMBUS, OHIO

OHIO CROP BUDGET

Your Name_____

Address_____

City_____

County_____

State_____ **Zip**_____

Phone_____

Mail Completed Form to: Dr. Allan E. Lines
Department of Agricultural Economics and Rural Sociology
The Ohio State University
2120 Fyffe Road
Columbus, Ohio 43210
Phone: (614) 422-2821

Make check payable to:
The Ohio State University

Cost per solution: $20.00
(Includes Present Plan and Optimum Plan)

Computer File Number for this Base Plan: B93 ASSIGNED BY OHIO STAFF

Use this number to identify your base plan when you want to run alternative plans. See Alternative Plan Input Form attached to back of this booklet.

Enter some identifying information (farm names, owner's or operator's name, etc.) in the space provided below. This information will appear on your computer printout.

Label for Output

Our Plan

O	H	I	O
B	A	S	E

Please print CAPITAL LETTERS only

Your Plan

WHERE TO FIND THE INPUT QUESTIONS

OHIO CROP BUDGET[1/]

How profitable is your present crop operation? What would happen to your profits if you shifted to more corn? More beans? Tried double-cropping? What changes would you need to make to best handle another eighty acres? Which of your present machinery items is most seriously affecting your timeliness? WHERE ARE THE REALLY BIG OPPORTUNITIES FOR YOU?

This computer crop budget is designed to help you find better answers to your many management questions. By using this budget you can see the impact of how a change in one factor "ripples through" the entire business. The computer is fantastically fast and accurate in measuring changes based on your answers to input form questions.

Everyone recognizes the value of timely planting. Yet no one has enough equipment to plant his crop in one day. What is the trade-off between crop yield losses and extra machinery costs, or maybe extra parttime labor hired in for a second shift, or maybe a switch to a different crop on the last acres planted, or maybe sharing work with a neighbor?

You supply ALL the basic numbers (you may use some of "Our Plan" figures, if they look O.K. for your farm). The computer does the arithmetic and comes up with the best possible farm plan- based on your data - and our ability to realistically direct the computer to solve the problem via a linear programming approach.

Earlier versions of this budget have been used by farmers in Ohio and throughout North America. In the past eight years 4000 farmers and others have attended fifty workshops where they have learned how to drive this new machine - the computer - across the fields of their own farms. It is their testimonials regarding the successful changes in farming they have made which have caused us to prepare this current version.

Many persons, both at OSU and at other universities, Extension field staff, agribusinessmen and farmers have placed their mark on this program. We thank you for your helpfulness and solicit your continued support.

Special acknowledgments: Purdue Agricultural Economists; Noah Hadley guided the early sessions and won the American Agricultural Economics Award for this project, Paul Robbins coordinated workshops and crop economics teaching, Will Candler wrote the earlier versions of this computer program. Robert Rades coordinated computer processing.

1/ An adaptation of the Purdue Crop Budget.

Introduction

The Ohio Crop Budget uses information on your corn, corn silage, soybean and wheat production situation to suggest a "good" corn/soybean/wheat cropping plan for your farm. This is a cropping plan. It does not take direct account of weather variability, price variability or machinery breakdown. The plan will not be realized in any one year, but will approximate expectations; hence, it should be useful to you in suggesting long run planning adjustments.[1/]

The budget has been designed to solve the problem of how much corn/wheat and/or soybeans you should produce considering relative labor and machinery scarcities at land preparation, planting and harvesting times. In addition to your own resources the model allows land rental, hiring of season labor and custom combining work to be "hired in" or "sold out". Corn and soybeans may be sold "wet" or "dry" and an allowance is made to grow your present acreage of corn silage. In addition, you may consider double crop soybeans after wheat.

The budget is a "long term" or "pre-season" planning budget, and not a day-to-day operating plan. Its main objective is to formulate a working plan based on various expectations you have when you plan ahead. These include expected planting and harvesting rates, expected number of working days per week during a particular time period, expected prices and costs, etc. In practice we know, of course, that you will have an above or below average season, and actual planting and/or harvesting patterns will deviate somewhat from those planned. In spite of this, it is expected that the budget will be found very useful as a relatively quick way of preparing detailed and high-profit farm plans.

This program can be used for a crop-livestock farm as well as a specialized corn/soybean farm. If planning for a mixed enterprise, it is essential to remember that labor availability and machinery field hours represent time availability for corn/corn silage/soybean/wheat production only. These times are presumably less than the corresponding times available for all farm work.

What Are the Computing Costs?

The charge for each computer budget is $20. For maximum benefit you should run the budget several times in order to explore alternative "good" ways of running your farm. The few dollars you spend as you "Test before you Invest" may be worth many hundreds of dollars in payoff from a better farm plan.

What Information is Required?

The required information is tabulated in the pages that follow. We have presented figures for a typical farm and have shown how these have been derived. If your estimates are the same as ours you should skip that question.

Management by Example

The approach taken in the enterprise budget is that of management by example. That is, the factors necessary to analyze the enterprises have been listed. A base plan or base value has been established for each. If a new or different value is entered in the appropriate blank, then the computer will use the new value. If it is not, then the computer will use the base value as listed. In most instances, the base plan values should be changed to fit the particular farm situation being considered.

The base plan (or "Our Plan") used on the following pages is for a 1-man farming operation using a conventional tillage and planting system.

1/ The "present situation" budget attempts to harvest the designated acreages of corn, corn silage, soybeans and wheat, to best advantage, assuming no compliance with the Government Program.

QUESTIONS OHIO FARMERS HAVE ANSWERED USING MODEL B

A. With Present Machinery, Labor, Land

1. What am I now making from my crop operation?
2. How much corn, soybeans, wheat acreage?
3. At about what date should I shift from corn planting to soybean planting?
4. How many more soybeans should I raise if the price were to increase 25 cents per bushel?
5. Could I increase income by doing custom work for others?
6. Should I hire in a custom combine for some of my work?
7. Where are my present labor bottlenecks?
8. What is my time worth in critical planting and harvest periods?

B. With A Change in Machinery

1. How is profit affected by a different size combine, tractor, planter?
2. To be more specific, what would the next larger size really cost me?
3. Does a machinery change affect the best combination of crops?
4. How would a change in tillage system affect my business?

C. With A Change in Labor

1. Can I afford to Pay $4 - $6 - $10 per hour for part-time labor at critical periods?
2. How would a second shift at planting or harvest affect profits?
3. Is it more profitable to hire extra labor and run my present equipment longer hours, to buy larger equipment, or to hire custom work?
4. Perhaps I should work off farm and farm part-time. How would this affect my system?

D. With A Change in Land Size

1. How much more land can I profitably rent? Buy?
2. If I can somehow get another 160 acres, what changes should I make in my machinery?

FARM SIZE

List the total acres on which you grow corn, corn silage, soybeans and wheat. Generally, you will want to include both your currently owned acres (cell 10) and your currently rented acres (cell 12) here. It is assumed that you are committed to farm these acres.

LAND CHARGE

You have a choice in deciding what to include in your fixed land costs. For your owned land (cell 11) you might charge only for Real Estate taxes and for tile maintenance. In the Ohio "Our Plan", we also included a land interest charge based on 1300 land @ 6 1/2%.

For rented land (cell 13) estimate the landlord's profit before Real Estate tax as your cost per acre. This estimate is a "cash rent equivalant" cost per acre:

		Total Farm		Landlord Share	
		Our Plan	Your Farm	Our Plan	Your Farm
Sales:	135 Bushel corn @ $2.00	$270.	$_____	$135	$_____
Expenses:	Seed	12.	_____	6.	_____
	Fertilizer	50.	_____	25.	_____
	Herb. and Insect.	20.	_____	10.	_____
	Harvesting	--	_____	--	_____
	Drying	10.	_____	5.	_____
	Hauling	6.	_____	3.	_____
				49.	_____
	Cash Rent Equivalent			$86	_____

The changes you list here will have no effect on the computer decision process. The computer will choose to use the above acres provided time, labor and machinery are available and provided the crop sales are greater than the variable costs for fertilizer, seed, et.

The profit and loss statement will include a land charge along with a charge for other fixed costs; namely, machinery and permanent labor.

RENT OUT LAND

(This applies only for the Optimum Plan. You don't rent out land on your present plan.)

You may want to satisfy yourself that your acres which are planted and harvested late are still profitable. In "Our Plan", (cell 14 and 15) we have said "rent up to 100 acres to someone else <u>if</u> the return above variable costs (seed, fertilizer, etc.) is less than $50 per acre.

EXTRA ACRES RENTED IN

After you have prepared one input form and are ready to consider alternatives, you may want to consider more rented land. List the maximum acres available that you could rent and the cost per acre (cells 16 and 17) to convert crop share rental to cash rent equivalent, use the format in the Land Charge section above. The computer will rent in acres - one acre at a time - only as long as your net profit increases. Assuming you want to consider additional rented acres <u>only</u> <u>on an alternative plan</u> and <u>not</u> on your original plan, please list your cell 16 and 17 numbers on the forms for alternative plans on page 34 of the input form.

FARM SIZE

		Our Plan	Your Plan
Owned Acres of corn, soybeans and wheat land	Acres	600.	10
Owned Land Charge per Acre	$ per A.	93.	11
Presently Rented Acres	Acres	0.	12
Presently Rented "Cash Rent Equivalent" land charge	$ per A.	86.	13
Present acres that could be rented out	Acres	100.	14
At Cash Rent per acre	$ per A.	50.	15

EXTRA ACRES

		Our Plan	Your Plan
Extra Acres that could be rented in	Acres	0.	16
(Note: Use cell 16 only when making alternative plans in the back of the Input Form)			
At Cash Rent Equivalent per Acre	$ per A.	86.	17

PRESENT CROP ACREAGE

The computer will make two budgets. The first budget will include your present acreage of each crop assuming you communicate correctly and the computer can "farm" your land pretty much as you do. The second budget will be the "best" crop mix the computer can find, considering all the information you can provide.

What is your present corn grain acreage	Acres	500	18
What is your present corn silage acreage	Acres	0	19
What is your present single crop soybean acreage	Acres	100	20
(List your silage acres planted on page 12, cells 335-340)			
What is your present wheat acreage	Acres	0	21

Add your crop acres in cells 18, 19, 20 and 21.

The Answer must be the same as the acres in cell 10 plus cell 12 above

What is your present soybean double crop acreage	Acres	0	22

FARM STORAGE AND DRYING

The computer program is designed to sort out the best strategy for using your harvesting equipment and your farm dryer, taking into account the total job to be done, the cost for farm and elevator drying, the yield penalties for delayed harvest, the cost of custom harvest and the prices for the various types of sales.

All corn and soybeans are "dried" to the base moisture percent you indicate for each crop. Wheat is not dried.

Corn and soybean drying and storage may be handled in the combination of three ways:

The crops can be dried on the farm and stored on the farm.
The crops can be dried on the farm and sold at harvest.
The crops can be elevator dried and sold at harvest.

Corn and soybeans may be stored in on-farm storage provided you have a farm dryer. If your crop production exceeds your farm storage, the crop will be sold at harvest either dry or wet, depending on the size of your farm dryer. If you have no farm dryer, the crop will be sold wet at harvest with elevator drying charges deducted. Wheat is sold at harvest.

Suppose you have a farm dryer but do not wish to "dry" one of the crops. (You might have high moisture corn storage or you might not harvest soybeans until they are dry enough to sell from the field.) In this case, set the base moisture (cell 31 or cell 32) equal to the corn moisture you put in all the moisture cells on page 9 beginning with cell 71 OR equal to the soybean moisture you put in all the moisture cells on page 11 beginning with cell 221.

	Our Plan	Your Plan	
	82,000	30 ____,000	Storage available for farm dried corn or soybeans (thousands of bushels)
%	14.0	31 ____.	Base moisture percent for "dry" corn
%	13.0	32 ____.	Base moisture percent for "dry" soybeans
(10 pts)	300	33 ____.	Corn drying capacity in Bu/hr for your farm dryer
(10 pts)	300	34 ____.	Soybean drying capacity in Bu/hr for your farm dryer
(hours)	16	35 ____.	Number of hours farm dryer used per day
(10 pts)	$ .10	36 .____	Variable drying costs on farm for corn
(10 pts)	.15	37 .____	Variable drying costs on farm for soybeans
(10 pts)	.20	38 .____	Elevator drying costs for corn
(10 pts)	.30	39 .____	Elevator drying costs for soybeans

CROP PRICES

If you have a farm dryer and farm storage, indicate your highest expected corn and soybean prices in cells 40 and 43. Your next highest prices would be for farm dried crops sold at harvest in cells 41 and 44.

In "Our Plan", we expect to hold farm-stored corn and soybeans until spring. We expect to get about $2.20 for corn and $5.30 for soybeans but we subtracted an "interest or holding cost" before listing our prices at net $2.10 and $4.75 in cells 40 and 43.

Our farm dried corn and soybean prices net us more than the elevator prices because, if we have the dryer capacity, we pay only fuel costs for farm drying ($.10/10 points) instead of the elevator drying costs ($.20/10 points).

We do not indicate an alternative for off-farm storage for later sale. You can do this, however, by deciding on your expected selling price and then subtracting elevator storage cost and interest or holding cost before listing your price in the harvest sales cells.

Wheat is sold at harvest. Of course, if you plan to delay wheat sales, you merely subtract your elevator storage and interest or holding costs from your expected sales price. There is no provision for farm drying or storing of wheat.

		Our Plan	Your Plan
Stored Corn Price (dried and stored at farm)	$/bu	$2.10	40 _____
Farm Dried Corn Price (dried and sold at harvest)	$/bu	2.00	41 _____
Elevator Dried Corn Price (dried and sold at harvest	$/bu	2.00	42 _____
Stored Soybean Price (dried and stored at farm)	$/bu	4.75	43 _____
Farm Dried Soybean Price (dried and sold at harvest)	$/bu	4.50	44 _____
Elevator Dried Soybean Price (dried and sold at harvest)	$/bu	4.50	45 _____
Wheat Price	$/bu	2.80	46 _____
Maximum Acres of Corn You Are Willing to Plant		99999	49 _____

Notes on Technology Decisions for Corn

The following table is essentially a statement of planned inputs or expected conditions. That is, IF you plant in one particular period, and IF you harvest in one particular period, THEN you would expect a particular yield and cost situation. The computer program uses this table, along with the field time and equipment available and information about other crops to actually schedule planting, harvesting, and other field operations to maximize profits.

"OUR PLAN" values are given. Enter "YOUR PLAN" values if they are different.

1/ YIELDS: "Our Plan" yields are reduced for delays in planting by 1 Bu/Acre/Day from May 10 to 23, and 2 Bu/Acre/Day from May 24 to June 6. Harvesting field losses in "Our Plan" are 2% between the first and second harvest periods, and 3-6% between the last two harvest periods.

2/ HARVEST MOISTURE: To mature to 30% moisture it is assumed the full-season hybrid (see SEED) required 2800 Heat Degree days and the mid-season hybrid, 2650 Heat Degree days. Field drying rate is assumed to be .4% per day from 30% to 17.5% moisture.

3/ SEED COSTS: We assumed use of a full-season hybrid ($40/bu) in the first 5 planting periods, a mid-season hybrid ($37/bu) in the last planting period. Seeding rate is varied from 27,000 kernels per acre in the first planting period down to 22,000 kernels per acre in the last planting period. A mortality factor of 15% is assumed in the first planting period, 10% in the last 5 planting periods.

4/ FERTILIZER: Assumed soil test: Ph - 6.5, P - 30#/A or high medium, K - 210#/A or high medium. Also, 1.25# N required per bushel produced. The following annual application rates are assumed: N - 175#/A knifed-in as NH_3 (18¢/lb actual N not including application costs); P_2O_5 - 55#/A bulk spread (20¢/lb); K_2O - 38#/A bulk spread (10¢/lb); Pop-up fertilizer - 50#/A of 9-27-3 ($160/ton); Lime - 1000#/A equivalent (custom applied at 2 tons/A every 4 years - 4.00/ton); Micro-nutrients at 25¢/A.

If you apply fertilizer to the corn crop expecting it to be used by the soybean crop, charge the beans with this fertilizer on page 11. Note only 120# N was applied on June plantings.

5/ HERBICIDE: It is assumed that 2# Atrazine and 2 qt. Lasso would be broadcast and disced-in at a cost of $12.00/A for materials. It is also assumed that 20% of the total acreage would be cultivated each year, but the cost of this is considered in the machinery section.

6/ INSECTICIDE: For rootworm control, an organo phosphate or carbamate is applied in the row each year at a cost of $8.00.

7/ CREDIT and MISCELLANEOUS: It is assumed that financing is required for 6 months at 8 1/2% per annum for fuel, oil, machinery maintenance costs, and for seed, fertilizer, herbicide, insecticide, and drying and miscellaneous costs. Miscellaneous costs include farm share of auto, telephone, magazine subscriptions, professional meetings, etc. and are listed at $9.00/Acre for corn.

Corn Technology Decisions -- Yield and Input Costs for Corn

	Our Plan	Your Plan
Multiplier to Adjust Corn Yield	135/135	50/135

Harvest Periods	Production Item	Planting Periods: Apr. 26-May 2		May 3-May 9		May 10-May 16		May 17-May 23		May 24-May 30		May 31-June 6	
		Our Plan	Your Plan	Our Plan	Your Plan	Our Plan	Your Plan	Our Plan	Your Plan	Our Plan	Your Plan	Our Plan	Your Plan
Sept. 27 to Oct 17	Yield[1] (bu/A)	145. 51	.	145. 52	.	138. 53	.	0 54	.	0 55	.	0 56	.
	Moisture[2] Content %	24. 71	.	26. 72	.	28. 73	.	30. 74	.	32. 75	.	27. 76	.
	Seed Costs[3] ($/A)	12. 91	.	12. 92	.	12. 93	.	12. 94	.	12. 95	.	12. 96	.
	Fertilizer[4] ($/A)	50. 111	.	50. 112	.	50. 113	.	50. 114	.	50. 115	.	50. 116	.
	Herbicide[5] ($/A)	12. 131	.	12. 132	.	12. 133	.	12. 134	.	12. 135	.	12. 136	.
	Insecticide[6] ($/A)	8. 151	.	8. 152	.	8. 153	.	8. 154	.	8. 155	.	8. 156	.
	Credit & Misc.[7] ($/A)	9. 171	.	9. 172	.	9. 173	.	9. 174	.	9. 175	.	9. 176	.
Oct 18 to Nov 7	Yield (bu/A)	142. 57	.	142. 58	.	138. 59	.	131. 60	.	120. 61	.	107. 62	.
	Moisture Content %	19. 77	.	21. 78	.	23. 79	.	26. 80	.	30. 81	.	25. 82	.
	Seed Costs ($/A)	12. 97	.	12. 98	.	12. 99	.	12. 100	.	12. 101	.	12. 102	.
	Fertilizer ($/A)	50. 117	.	50. 118	.	50. 119	.	50. 120	.	50. 121	.	50. 122	.
	Herbicide ($/A)	12. 137	.	12. 138	.	12. 139	.	12. 140	.	12. 141	.	12. 142	.
	Insecticide ($/A)	8. 157	.	8. 158	.	8. 159	.	8. 160	.	8. 161	.	8. 162	.
	Credit & Misc. ($/A)	9. 177	.	9. 178	.	9. 179	.	9. 180	.	9. 181	.	9. 182	.
Nov 8 to Nov 28	Yield (bu/A)	136. 63	.	136. 64	.	132. 65	.	125. 66	.	114. 67	.	98. 68	.
	Moisture Content %	18. 83	.	19. 84	.	20. 85	.	22. 86	.	25. 87	.	22. 88	.
	Seed Costs ($/A)	12. 103	.	12. 104	.	12. 105	.	12. 106	.	12. 107	.	12. 108	.
	Fertilizer ($/A)	50. 123	.	50. 124	.	50. 125	.	50. 126	.	50. 127	.	50. 128	.
	Herbicide ($/A)	12. 143	.	12. 144	.	12. 145	.	12. 146	.	12. 147	.	12. 148	.
	Insecticide ($/A)	8. 163	.	8. 164	.	8. 165	.	8. 166	.	8. 167	.	8. 168	.
	Credit & Misc. ($/A	9. 183	.	9. 184	.	9. 185	.	9. 186	.	9. 187	.	9. 188	.

Place your own number in EACH Cell OR take shortcuts as follows:

CORN YIELD: To adjust "Our Plan" yield cells, say 5 bushels lower, enter "130" in Cell 50. Caution: Cell 50 will not affect any yield you write into cells 51 thru 68. A zero yield in any yield cell will cause no corn to be grown in that period.

Seed, Fertilizer, Herbicide, Insecticide, Interest Costs: Costs which you enter in the "Boxed In" first period (cells 91, 111, 131, 151, and 171) will be used in all the periods, unless you put different costs in other periods.

Notes on Technology Decisions for Soybeans

The following table is essentially a statement of planned inputs or expected conditions. That is, IF you plant in one particular period, and IF you harvest in one particular period, THEN you would expect a particular yield and cost situation. The computer program uses this table, along with the field time and equipment available and information about other crops to actually schedule planting, harvesting, and other field operations to maximize profits.

"OUR PLAN" values are given. Enter "YOUR PLAN" values if they are different.

1/ YIELD: Yields are based on a mid-season variety for the September 13-26 harvest period and a full season variety for the September 27-October 17 harvest period.

2/ HARVEST MOISTURE: Soybean drying may be considered if you have a farm dryer. Soybeans should be dried to 11% moisture for safe farm storage, although the base moisture content for sale at harvest is 13%. In "Our Plan" we delay harvest until beans require no drying (13% moisture).

3/ SEED COSTS: Sixty pounds of seed at $10.00/bu. is assumed for both the medium and full season planting.

4/ FERTILIZER: The following annual application rates are assumed: P_2O_2 - 50#/A bulk spread (20¢/lb); K_2O - 80#/A bulk spread (10¢/lb.); Lime and Micro-nutirents at $6.00/A. Some of this might have been applied to the corn crop. The $15 fertilizer cost listed on page 11 is the net chargable to soybeans after subtracting a fertility credit for soybeans equal to 1# of nitrogen per bushel of beans produced. This credit is applicable only when crops, such as corn or soybeans follow first year beans.

5/ HERBICIDE: It is assumed that 2 quarts of Lasso @ $14/gal, and 2 pounds of Lorax 50W @ $3.50/lb. is broadcast overall.

6/ CREDIT AND MISCELLANEOUS: It is assumed that financing is required for 6 months at 8 1/2% per annumm for fuel, oil, machinery maintenance costs, and for seed, fertilizer, herbicide and miscellaneous costs. Miscellaneous costs are listed at $13.00/acre for soybeans.

Technology -- Yield and Input Costs for Soybeans[1/]

	Our Plan	Your Plan	Our Plan	Your Plan	
Maximum Acres of Soybeans You Are Willing to Plant	99999	199	40 / 40	200 / 40	Multiplier to Adjust Soybean Yield

Harvest Periods	Production Item	Planting Periods: Apr. 26-May 2		May 3 -May 9		May 10-May 16		May 17-May 23		May 24-May 30		May 31-June 6	
		Our Plan	Your Plan	Our Plan	Your Plan	Our Plan	Your Plan	Our Plan	Your Plan	Our Plan	Your Plan	Our Plan	Your Plan
Sep. 13 to Sep. 26	Yield[1/] (bu/A)	45.	201	44.	202	43.	203	41.	204	39.	205	0.	206
	Moisture Content%[2/]	13.	221	13.	222	13.	223	13.	224	13.	225	13.	226
	Seed Costs[3/] ($/A)	10.	241	10.	242	10.	243	10.	244	10.	245	10.	246
	Fertilizer[4/] ($/A)	15.	261	15.	262	15.	263	15.	264	15.	265	15.	266
	Herbicide[5/] ($/A)	14.	281	14.	282	14.	283	14.	284	14.	285	14.	286
	Credit & Misc.[6/]	13.	301	13.	302	13.	303	13.	304	13.	305	13.	306
Sep. 27 to Oct. 17	Yield (bu/A)	44.	207	43.	208	42.	209	40.	210	38.	211	34.	212
	Moisture Content%	13.	227	13.	228	13.	229	13.	230	13.	231	13.	232
	Seed Costs ($/A)	10.	247	10.	248	10.	249	10.	250	10.	251	10.	252
	Fertilizer ($/A)	15.	267	15.	268	15.	269	15.	270	15.	271	15.	272
	Herbicide ($/A)	14.	287	14.	288	14.	289	14.	290	14.	291	14.	292
	Credit & Misc.	13.	307	13.	308	13.	309	13.	310	13.	311	13.	312
Oct. 18 to Nov. 7	Yield (bu/A)	43.	213	42.	214	41.	215	39.	216	37.	217	33.	218
	Moisture Content%	13.	233	13.	234	13.	235	13.	236	13.	237	13.	238
	Seed Costs ($/A)	10.	253	10.	254	10.	255	10.	256	10.	257	10.	258
	Fertilizer ($/A)	15.	273	15.	274	15.	275	15.	276	15.	277	15.	278
	Herbicide ($/A)	14.	293	14.	294	14.	295	14.	296	14.	297	14.	298
	Credit & Misc.	13.	313	13.	314	13.	315	13.	316	13.	317	13.	318

Place your own numbers in EACH CELL OR take Shortcuts as follows:

SOYBEAN YIELD: To adjust "Our Plan" yield cells, say 5 bushels lower, enter "35" in cell 200. CAUTION: Cell 200 will not affect any yield you write into cells 201 thru 218. A zero yield in any yield cell will cause no soybeans to be grown in that period.

SEED, FERTILIZER, HERBICIDE, INTEREST, MISCELLANEOUS COSTS: Costs which you enter in the "Boxed In" first period (cells 241, 261, 281, and 301) will be used in all the periods, unless you put different costs in other periods.

1/ Date of planting yields developed by Jim Beuerlein and Gordon Ryder -- OSU Agronomists.

Harvesting losses developed by Bud Byg -- OSU Agricultural Engineer.
(Assume use of flexible floating cutter bar.)

WHEAT OPTION

Our Plan		Your Plan	
600		320 _____	The most acres of wheat I want to consider

Wheat will compete with corn and soybeans for the limiting resources available on your farm. Land is a limiting resource, and so are machinery and labor during land preparation, planting, and harvesting times. Two time periods are allowed for wheat land preparation and planting, i.e., Sept. 27-Oct. 17 and Oct. 18-Nov. 7; and only one period has been allocated for harvesting, i.e., June 14-July 18.

	Our Plan	Your Plan	
bu/acre	60	321 _____	Yield: Sept. 27-Oct. 17 planting
bu/acre	54.	322 _____	Yield: Oct. 18-Nov. 7 planting
$/acre	15.	323 _____	Seed Costs
$/acre	34.	324 _____	Fertilizer
$/acre	0.	325 _____	Herbicides
$/acre	15.	326 _____	Credit Interest and Miscellaneous

DOUBLE CROPPING SOYBEAN OPTION

Our Plan	Your Plan	
50.	327 _____	The most acres of double crop soybeans I want to consider

Double crop soybeans, after wheat, are planted in the June 14-July 18 period and harvested in the Oct. 18-Nov. 7 period only.

	Our Plan	Your Plan	
bu/acre	24	328 _____	Soybean Double Crop Yield
%	13.	329 _____	Moisture Content
$/acre	13.	330 _____	Seed Costs
$/acre	0.	331 _____	Fertilizer
$/acre	20.	332 _____	Herbicides
$/acre	12.	333 _____	Credit Interest and Miscellaneous

CORN SILAGE

Our Plan	Your Plan	
0	334 _____	The most acres of silage I want to consider

In cell 334 list at least as many acres as you indicated in cell 3 on page 5. List your present acreage by planting dates in cells 335 through 340 below. If you indicate you want to consider more acreage than you are presently growing, the program is designed to consider this and determine the planting period for it. Allowance for the extra acreage is provided by increasing cell 334 above.

	Our Plan	Your Plan	
Acres	0	335 _____	Apr. 26-May 2
Acres	0	336 _____	May 3-May 9
Acres	0	337 _____	May 10-May 16
Acres	0	338 _____	May 17-May 23
Acres	0	339 _____	May 24-May 30
Acres	0	340 _____	May 31-June 6
(Tons)	20	341 _____	What is your silage yield per Acre?
($)	20.	342 _____	What is your silage value per ton?

Note: Silage will be harvested from Sept. 13-Oct. 17.

This budget is designed to solve the problem of how much corn, soybeans, and/or wheat to produce considering machin and labor scarcities for land preparation, planting, post planting and harvesting.

Good field time available depends on weather, soil type, drainage, day length you are willing to have your equipment operate and whether you work on Sundays. In "Our Plan" Field Time Available, we are willing to have our equipment operate 9-12 hours on good week days.

We have decided to list the number of good week days available on a fair to poorly drained Central Ohio farm in the 15th worst year in the last 20 seasons. Penalties in the Eastern Cornbelt for late planting and harvest are severe. We have found that we can afford to "tool up" for this type weather. Of course, you may want to take a different amount of risk. In an average season perhaps 50% more days are suitable for work. Also, on sandy soils up to 50% more days are suitable for work. Of course, machinery preparation and breakdowns, meals, travel to fields, funerals, etc. reduce the hours of good time actually available in the field.

Field Time Multipliers: There are two kinds of "multipliers" on the two weather pages. The column multipliers adjust all the numbers in the column. For example, to have Sundays available for good field time, you would write 1.16 in cell 350. Sunday is 16% of a 6-day week; thus, good field time is increased to 116% of our plan in all the periods, both spring and fall. This type of multiplier is cell 350 or 351.

The second type of multiplier adjusts a specific type of work time such as for planting. You can adjust the good planting field time by weekly periods (Cells 376, etc.). For corn harvesting and fall land prep, you can adjust the good field time by three week periods (Cells 427,430, etc.). For the field operations of land preparation and post planting during the six planting weeks, for wheat harvest and for silage and soybean harvest, you can adjust the field time available only for the whole period affected (see Cells 412, 413, 414, 450, 451).

Labor Availability: Describe your labor in two ways. First in the cells under Permanent Labor, indicate the number of full-time permanent men you have available for crop field work. This includes yourself, permanent hired labor, and family labor. List only the labor available for crops on good weather days suitable for field work. (For example, if you milk cows 4 hours each day and you indicated 10 hour days in the field hour section, then you may have available 6 hours per day for field work. If so, list .6 permanent men in, say cell 353). Second, if you wish to consider hiring part-time labor, indicate the most men you could expect to hire in any period. (For example, if you could hire a high school student for 3 hours a day during Sept. 13-27 where you have said your good field hour time was 10 hours a day, then list .3 in cell 440). You will hire part-time labor only when it is profitable to do so.

Tractor Availability: Indicate the number you have available to do the jobs that need to be done in each time period. SPECIAL NOTE: In order to simplify the explanation and use of "Our Plan" figures for you to modify, we have stored in the computer one part-time man and one tractor available. Thus, you can list your expected part-time men and tractors available. Actually, when we ran a budget of the Our Plan data, we used 2 part-time men available and 2 tractors available.

Labor Costs. Permanent labor (yourself, your family and your permanent hired help) is paid the same regardless of the number of hours you work in crops. In cell 456, you will want to list the salaries for all permanent staff which you wish to charge to crops. If you want to allocate a salary for yourself, include it here, also. If you do not pay yourself a salary, you will have more "Net Returns" on the bottom line of the Profit and Loss Statement.

No matter what you list for permanent labor costs, you will not affect the optimum crop mix, the number of acres rented, etc. Those decisions are made by the computer program based on returns and variable costs. However, you may decide you don't want to continue working yourself and your permanent labor when you are increasing net only a small amount. If so, indicate a minimum hourly return for permanent labor in Cell 457.

Part-time labor is hired by the hour only when the returns from the work done are greater than the part-time labor cost. For example, hiring a part-time man may speed up your corn planting so you can avoid expected low yields for June planting. List the part-time wage rate in Cell 458. Since part-time laborers may not be as efficient and/or since you may do less fieldwork as you supervise them, you can indicate a part-time hired labor efficiency adjustment in Cell 459.

SPRING AND SUMMER FIELD TIME, LABOR and TRACTOR AVAILABILITY

Time Periods	Good Field Time Available: Our Plan Good Week Days	Our Plan Hrs. Per Day	Our Plan Total Hours	Your Plan No. Good Days	Your Plan Hrs. Per Day	Multipliers 1/: Planting Time Our Plan	Planting Time Your Plan	Labor Available: Full Time Our Plan	Full Time Your Plan	Part Time Our Plan	Part Time Your Plan	Tractors Available: Our Plan	Tractors Available: Your Plan
Use this line to Adjust "Our Plan" for the Entire Season				350	351								
1. Column Multipliers	1.0	1.0		. x	.	1.0	352 .	1.0	353 .	1.0	354 .	1.0	355 .
LAND PREPARATION								No. Perm. Men Avail.		Max. P.T Men Avail. to hire		No. of Tractors Available	
2. Mar.15-Apr.4 (3 wks)	4.0	9.	= 36.	356 . x	366 .			1.0	382 .	1.0	392 .	1.0	402 .
3. Apr. 5-Apr.25(3 wks)	6.0	9.	= 54.	357 . x	367 .			1.0	383 .	1.0	393 .	1.0	403 .
PLANTING, LAND PREP POST PLANT													
4. Apr. 26-May 2(1 wk)	2.1	12.	= 25.	358 . x	368 .			1.0	384 .	1.0	394 .	1.0	404 .
5. May 3-May 9 (1 wk)	2.1	12.	= 25.	359 . x	369 .			1.0	385 .	1.0	395 .	1.0	405 .
6. May 10-May 16(1 wk)	2.7	12.	= 32.	360 . x	370 .			1.0	386 .	1.0	396 .	1.0	406 .
7. May 17-May 23(1 wk)	2.7	12.	= 32.	361 . x	371 .			1.0	387 .	1.0	397 .	1.0	407 .
8. May 24-May 30(1 wk)	3.3	12.	= 40.	362 . x	372 .			1.0	388 .	1.0	398 .	1.0	408 .
9. May 31-June 6(1 wk)	3.3	12.	= 40.	363 . x	373 .			1.0	389 .	1.0	399 .	1.0	409 .
POST PLANT, WHEAT HARVEST													
10. June 7-June13(1 wk)	3.3	12.	= 40.	364 . x	374 .			1.0	390 .	1.0	400 .	1.0	410 .
11. June14-July18(5 wks)	16.6	12.	= 199.	365 . x	375 .			1.0	391 .	1.0	401 .	1.0	411 .

MULTIPLIERS FOR ADJUSTING GOOD FIELD TIME AVAILABLE

	Our Plan	Your Plan
Land Prep. Apr. 26-June 6	1.0	412
Post Plant Apr. 26-July 18	1.0	413
Wheat Harvest June 14-July 18	1.0	414

1/ The Numbers you indicate in the Multipliers Section cells are multiplied by "Your Plan" good field time to arrive at the Planting Time Availab,e the Land Prep Time, Post Plant Time, Wheat Harvest Time, Soybean Harvest Time, Silage Harvest Time and the Labor and Tractor Time available for each period. You can scale some periods by either of two methods. However, if you place a number in both cells, such as 353 and 385, your cell 353 affects the permanent labor available in all periods on page 14 and 15 but your cell 385 determines you May 3-9 permanent labor time available and overrides your cell 353 entry.

FALL FIELD TIME, LABOR and TRACTOR AVAILABILITY

Time Period	Good Field Time Available — Our Plan: Good Week Days	Our Plan: Hrs. per Day	Our Plan: Total Hours	Your Plan: No. Good Day	Your Plan: Hrs. per Day	Corn Harvest Time: Our Plan	Corn Harvest Time: Your Plan	Fall Land Prep.Time: Our Plan	Fall Land Prep.Time: Your Plan	Labor Available — Full Time: Our Plan	Full Time: Your Plan	Part Time: Our Plan	Part Time: Your Plan	Tractors: Our Plan	Tractors: Your Plan
1. Column Multiplier for the fall season				See Cells 350 & 351, page 14		Multipliers 1.0	415 ___	Multipliers 1.00	416 ___	See Cells 353, 354 and 355 page 14					
12. Sep.13-Sep.26(2 wks)	6.5	x 10. =	65.	417 ___ x	422 ___					1.0	435 ___	1.0	440 ___	1.0	445 ___
13. Sep.27-Oct.17(3 wks)	10.9	x 10. =	109.	418 ___ x	423 ___					1.0	436 ___	1.0	441 ___	1.0	446 ___
14. Oct.18-Nov. 7(3 wks)	9.4	x 10. =	94.	419 ___ x	424 ___					1.0	437 ___	1.0	442 ___	1.0	447 ___
15. Nov. 8-Nov.28(3 wks)	7.5	x 10. =	75.	420 ___ x	425 ___					1.0	438 ___	1.0	443 ___	1.0	448 ___
16. Nov.29-Mar.14	4.1	x 10. =	41.	421 ___ x	426 ___					1.0	439 ___	1.0	444 ___	1.0	449 ___

MULTIPLIERS FOR ADJUSTING GOOD FIELD TIME AVAILABLE

		Our Plan	Your Plan
Silage Harvest	Sep.13-Oct.17	1.0	450 ___
Soybean Harvest	Sep.13-Nov.7	.67	451 ___

FALL LAND PREPARATION

What is the most acreage you can prepare for Corn & Beans in the fall (Before Nov. 29) Acres: 500 — 452 ___

Wheat land prep and planting is done in Fall Land Prep Periods, Sep. 27-Nov.7.

SPECIAL TRACTOR INFORMATION

	Our Plan	Your Plan
No. of Your Tractors used for Corn/Soybean Harvest	1.0	453 ___
No. of Your Tractors used for silage harvesting: when you use your own equipment?	2.0	454 ___
when a custom operator harvests your silage	0	455 ___

LABOR COSTS

Total full-time Labor costs, including family	$10,000	456 ___
Min. hourly earnings for which you will work on farm crops (Example: $2.00)	$0.00	457 ___
Wage rate for Part-time Hired Labor	$4.00	458 ___
Hired Labor Efficiency	.80	459 ___

1/ The numbers you indicate in the multipliers section cells are multiplied by "Your Plan" good field time to arrive at t Planting Time Available, the Land Prep Time, Post Plant Time, Wheat Harvest Time, Soybean Harvest Time, Silage Harvest Time and the Labor and Tractor Time available for each period. You can scale some periods by either of two methods. However, if you place a number in both cells, such as 354 and 442, your cell 354 affects the number of part-time men available in the other time periods, but your cell 442 indicates the number of part-time men available in the Oct.18-Nov. 7 period.

Notes on Work Sheet for Machinery Decisions

This information is required as an aid in estimating the rate (acres/hour) at which machinery and labor can perform the various operations connected with preparation, planting, cultivating, and harvesting of corn and soybeans. First, we have listed all field operations to be completed with our equipment and labor -- do not list jobs done by custom operators. The next step is to determine how many acres/hour can be covered with each operation. This can be done two ways:

First way: Think back to how many acres you were able to cover in a certain amount of field time. Say, for instance, with your equipment and on your own soil conditions you were able to disc 42 acres of stalks in 8 hours of actual field time. Your field capacity for discing stalks would be (42 acres/8 hours) = 5.25 acres per hour. If you estimate field capacity in this way, it is unnecessary to estimate width of machine, speed of operation, and field efficiency. In other words, you complete the column for field capacity directly.

Second way: Use the formula, as we have done:

$$\text{Field Capacity (A/Hr.)} = \frac{\text{Width (ft.)} \times \text{Speed (mph)} \times \text{Field Efficiency (\quad \%)}}{8.25}.$$

If two implements are used for a particular operation, use the above formula for each machine separately, then add to get the (total) Field Capacity estimate, and divide by two to get the average rate. Our field efficiency values are typical, but use your own if you know them. Field efficiency is the percent of total field time spent operating at the desired speed and width. (It cannot be 100% because you must turn at the ends, stop for adjustment, stop for planter refills, stop for fuel and maintenance, etc.)

1/ Some operations are completed every year, others every two or three years. e.g., In OUR PLAN, P & K is spread on 1/3 of the total acreage each year. Also, in OUR PLAN we assumed 50% of the corn acreage rotary hoed each year, and 20% of the acreage cultivated each year. We assumed the total soybean acreage was hoed and cultivated.

2/ The field capacity rate divided by the proportion of your acreage treated gives the adjusted field capacity (acres/hour) to be applied to your total acreage. This estimate is transferred to the next page and is an important part of the computer data.

Work Sheet for Machinery Decisions (not a part of computer input)

This information is NOT a part of the computer input data. It is simply an aid to allow you to develop suitable working rates (acres/hour) which are required in the next table on the next page. You may ignore this page if you can complete successfully the table shown on page 18.

6 Row Conventional Fall Plow

	Operation and/or Equipment	Width of Machine (ft)		Speed of Operation (mph)		Field Efficiency (%)		Field Capacity (A/Hr)		Proportion of Acreage Treated Each Year 1/ Corn	Soybeans		Adjusted Field Capacity (A/Hr) 2/, 3/ Corn	Soybeans
	Spread P & K (4-ton)	(24.	x	5.	x	75.)	÷ 8.25 =	10.91	÷	.33	.33	=	32.73	32.73
	Disc Stalks	(14.	x	5.	x	83.)	÷ 8.25 =	7.04	÷	1.0	0.	=	7.04	0.
OUR	Plow +NH3 (4-16" bot)	(5.33	x	4.5	x	77.)	÷ 8.25 =	2.24	÷	1.0	1.0	=	2.24	2.60
	Disc + Insect.	(14.	x	5.	x	79.)	÷ 8.25 =	6.70	÷	1.0	1.0	=	6.70	6.70
PLAN	Disc + Herb.	(14.	x	5.	x	79.)	÷ 8.25 =	6.70	÷	1.0	1.0	=	6.70	6.70
	Plant (6-row, 30-inch)	(15.	x	4.	x	69.)	÷ 8.25 =	5.02	÷	1.0	1.0	=	5.02	5.02
	Rotary Hoe (6-row)	(15.	x	8.	x	86.)	÷ 8.25 =	12.51	÷	.5	1.0	=	25.02	12.51
	Cultivate (6-row)	(15.	x	4.	x	78.)	÷ 8.25 =	5.67	÷	.2	1.0	=	28.35	5.67
										Wheat			Wheat	
	Disc Stalks	(14.	x	5.	x	83.)	÷ 8.25 =	7.04	÷	1.0		=	7.04	
	Drill	(12.	x	5.	x	83.)	÷ 8.25 =	6.0	÷	1.0		=	6.0	
	Plant Dbl.Crop Soybeans	(15.	x	4.	x	69.)	÷ 8.25 =	6.7	÷		1.0	=		6.70
	_____	(.	x	.	x	.)	÷ 8.25 =	.	÷	. 1/	.	=	. 2/, 3/	.
	_____	(.	x	.	x	.)	÷ 8.25 =	.	÷	.	.	=	.	.
YOUR	_____	(.	x	.	x	.)	÷ 8.25 =	.	÷	.	.	=	.	.
	_____	(.	x	.	x	.)	÷ 8.25 =	.	÷	.	.	=	.	.
PLAN	_____	(.	x	.	x	.)	÷ 8.25 =	.	÷	.	.	=	.	.
	_____	(.	x	.	x	.)	÷ 8.25 =	.	÷	.	.	=	.	.
	_____	(.	x	.	x	.)	÷ 8.25 =	.	÷	.	.	=	.	.
	_____	(.	x	.	x	.)	÷ 8.25 =	.	÷	.	.	=	.	.
	_____	(.	x	.	x	.)	÷ 8.25 =	.	÷	.	.	=	.	.
	_____	(.	x	.	x	.)	÷ 8.25 =	.	÷	.	.	=	.	.
	_____	(.	x	.	x	.)	÷ 8.25 =	.	÷	.	.	=	.	.
										Wheat			Wheat	
	_____	(.	x	.	x	.)	÷ 8.25 =	.	÷	.	.	=	.	.
	_____	(.	x	.	x	.)	÷ 8.25 =	.	÷	.	.	=	.	.
	_____	(.	x	.	x	.)	÷ 8.25 =	.	÷	.	.	=	.	.
	_____	(.	x	.	x	.)	÷ 8.25 =	.	÷			=		.

1/ 2/ 3/ : Footnotes on opposite page.

We have listed all the essential operations for corn and/or soybean production in Our Plan. An estimate of the field capacity (acres/hour) at which these operations can be performed is required. For certain operations the rate is also the same for corn and soybeans. On your farm the working rate will depend upon the size, quality and quantity of equipment available.

Operations	Number of Units of Equipment	OUR PLAN Adjusted Field Capacity Corn (acres/hour)	Soybeans (acres/hour)	Labor Time Man Per Field Hour
LAND PREP. FALL OR SPRING				
Spread P & K	1.[1/]	32.73[2/]	32.73	1.33[3/]
Disc Stalks	1.	7.04	---	1.02
Plowing	1.	2.24	2.24	1.08
Disc (early)	1.	6.70	6.70	1.02
PLANTING				
Disc (late)	1.	6.70	6.70	1.10
Planting	1.	5.02	5.02	1.16
POST-PLANT(2 weeks after planting for corn) (2 weeks after planting for soybeans)				
Rotary Hoe [4/]	1.	25.02	12.51	1.02
POST-PLANT (4 weeks after planting for corn) (4 weeks after planting for soybeans)				
Cultivate[4/]	1.	28.00	5.67	1.04
		Wheat		
Disc Stalks	1.	7.04	xxxxxxx	1,02
Drill	1.	6.00	xxxxxxx	1.20
			Soybean Double Crop	
Plant	1.	xxxxxxx	6.7	1.16

1/ The number of pieces of equipment is important. This information is used to calculate a field hour coefficient. To illustrate, a farmer with 2 tractors and 2 plows can plow approximately 2 times as much as a farmer who has 2 tractors but only 1 plow. Estimate the average rate for your plows with your soil conditions.

2/ List the adjusted field capacity in acres/hour and the labor time for one unit of equipment.

3/ Labor has to perform work connected with plowing, fertilizing, etc. In other words, preparation for fertilization takes time. For instance, before fertilizer can be spread "in the field", the spreader must be filled and moved to the field. Our 1.33 estimate for Spread P & K assumes that for every hour the operator will spend in the field, he will spend .33 of an hour doing other things.

4/ These operations (rotary hoeing, cultivating, etc.) are performed "some time" after planting. In Our Plan we have assumed rotary hoeing can begin 2 weeks after the crop is planted and cultivating can begin 4 weeks after planting. Enter an estimate representing your practice.

5/ Land Preparation in the fall can be held up because tractors are required for harvesting and vice-versa. Even if your harvester is self-propelled you may still require a tractor for hauling. The number of tractors "available" during each of the 2 periods listed can include your own, borrowed, hired, etc., as long as they can perform the field operations specified, at the specified field capacity.

NOTE: Refer to pages 30, 31, 32, 33 and 34 for help in estimating working rates in acres per hour.

YOUR PLAN

Operations	Number of Units of Equipment	Adjusted Field Capacity Corn	Adjusted Field Capacity Soybeans	Men Per Field Hour
LAND PREP. - FALL OR SPRING	500* 1/	501 (A/Hour) 2/	502 (A/Hour)	503 3/
1.	.	.	.	.
2.	504 .	505 .	506 .	507 .
3.	508 .	509 .	510 .	511 .
4.	512 .	513 .	514 .	515 .
5.	516 .	517 .	518 .	519 .
6.	520 .	521 .	522 .	523 .
PLANTING	524	525	526	527
7.	.	.	.	.
8.	528 .	529 .	530 .	531 .
9.	532 .	533 .	534 .	535 .
10.	536 .	537 .	538 .	539 .
POST-PLANT 4/ 540 ___ weeks after planting for corn 541 ___ weeks after planting for soybeans				
11.	542 .	543 .	544 .	545 .
12.	546 .	547 .	548 .	549 .
POST-PLANT 4/ 550 ___ weeks after planting for corn 551 ___ weeks after planting for soybeans				
13.	552 .	553 .	554 .	555 .
14.	556 .	557 .	558 .	559 .
WHEAT, PREP. AND PLANT		Wheat		
15.	560 .	561 .	XXXXXXXX	562 .
16.	563 .	564 .	XXXXXXXX	565 .
17.	566 .	567 .	XXXXXXXX	568 .
18.	569 .	570 .	XXXXXXXX	571 .
DOUBLE CROP SOYBEAN PREP. AND PLANT				
19.	572 .	XXXXXXXXXX	573 .	574 .
20.	575 .	XXXXXXXXXX	576 .	577 .
21.	578 .	XXXXXXXXXX	579 .	580 .

* "Our Plan" information is shown on the facing page, and "Our Plan" is stored in the computer. However, when you place a number in cell 500 all the "Our Plan" data in cells 500 thru 580 on this page is deleted from the computer. Thus, you must list all of "Your Plan" information even though some of it is the same as "Our Plan".

HARVEST CONSIDERATIONS

Operations	Number of Units Our Plan	Your Plan	Adjusted Field Capacity for Given Yields (Acres/Hour)									
			Corn				Soybeans and Wheat				Silage	
			Our Plan		Your Plan 2/		Our Plan		Your Plan 2/		Our Plan	Your Plan 2/
Yield/A.			150 bu.	100 bu.	150 bu.	100 bu.	45 bu.	30 bu.	45 bu.	30 bu.	Acres	Acres
Corn Only	0	610 1/ ___.	2.17	3.25	611 ___.	612 ___.	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxx	xxxxxx
Soybeans Only	0	613 ___.	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx	4.5	5.0	614 ___.	615 ___.	xxxxxx	xxxxxx
Corn & Soybeans	1	616 ___.	2.17	3.25	617 ___.	618 ___.	4.5	5.0	619 ___.	620 ___.	xxxxxx	xxxxxx
Wheat	1	621 ___.	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx	2.75	3.0	622 ___.	623 ___.	xxxxxx	xxxxxx
Silage	0	624 ___.	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx	2.0	625 ___.
			Labor Time (men per field hour) 3/									
Corn Harvest			2.4	2.2	626 ___.	627 ___.	xxxxxx	xxxxxx	xxxxxxx	xxxxxxx	xxxxxx	xxxxxx
Soybean Harvest			xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx	1.67	1.67	628 ___.	629 ___.	xxxxxxx	xxxxxx
Wheat			xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx	1.67	1.67	630 ___.	631 ___.	xxxxxx	xxxxxx
Silage			xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx	xxxxxxx	4.0	632 ___.

1/ List the number of units of harvesting equipment available. If you jointly own a harvesting unit with someone, place a "1" in the appropriate cell (610, 613, 616, 621, 624). Then on page 15, reduce your harvest field hours available for that machine to your share of that machine's time. If you have no harvesting equipment, place a zero (0) in cell 610, 613, 616, 621, or 624 and indicate expected working rate for custom operator in cell 611, 612, 614, 615, 617, 618, 619, 620, 622, 623, or 625.

2/ List the harvest rate (acres/hr.) for the total number of machines you have listed in cells 610, 613, 616, 621, or 624. Estimate the working rate for two corn yields (150 and 100 bu.) for two soybean yields (45 and 30 bu.) and for two wheat yields (45 and 30 bu.) Based on these rates the computer will figure your working rates for any yields you specify on the corn, soybean and wheat yield pages. (Pages 9, 11, 12) The silage harvest rate is simply your acres per hour estimate for whatever yield you produce.

3/ List the number of your men involved with your harvest when all the units you listed at the top of this page are operating. If you have no harvesting equipment, list the number of your men involved with custom harvest.

CUSTOM HARVEST

Some farmers have all their own harvest equipment. Some farmers have no harvest equipment. Some farmers have excess harvest equipment and do custom work for others. Some farmers have small harvest equipment and rely, or perhaps should rely, on custom operators to complete their harvest.

Your have an opportunity to consider how custom harvesting applies to your own farm. In your first budget, you will probably want to describe how you now accomplish your harvest. For example, if you now hire in NO corn harvest enter a big number (like 999.99) in cell 640. If you now do NO corn harvest for others, enter a small number (like 0.00) in cell 641.

In later budgets, you may want to consider other alternatives. When both Hire In and Hire Out options are available, a surprising solution is sometimes found. Your optimum plan might suggest that you Hire In Custom Harvest early in the season when yields are highest and then Hire Out and work for other farmers later in this season.

	Example	Our Plan	Your Plan
Cost of Corn Combine Hired In	$.13/bu	$999.00	640 .
Cost of Corn Combine Hired Out	$.12/bu	$ 0.00	641 .
Cost of Soybean Combine Hired In	$.25/bu	$999.00	642 .
Cost of Soybean Combine Hired Out	$.23/bu	$ 0.00	643 .
Cost of Wheat Combine Hired In	$9.00/Ac	$999.00	644 .
Cost of Wheat Combine Hired Out	$8.00/Ac	$ 0.00	645 .
Cost of Silage Harvest Hired In	$40.00/AC	$999.00	646 .
No. of men supplied, custom harvest - corn, soybeans, wheat	men	1.1	647
No. of men supplied, custom harvest - corn silage	men	2.0	648

MACHINERY DECISIONS - FIXED COSTS

OUR PLAN: 6 Row Conventional Fall Plow

Machinery Item	Rating or Size	No. of Units	Unit List Price	Total List Price	Annual Fixed Cost[1]	Annuall Fixed Cost[2]
				($)	(%of list)	($/Year)
Tractor	70 PTOHP	2 x	$12,300 =	$24,600 x	16.5 =	$ 4,059
Fertilizer Spreader	6 ton	1 x	6,000 =	6,000 x	18.5 =	1,110
Plow + NH_3 Attach	4-16"	1 x	3,520 =	3,520 x	18.5 =	651
Disc	14 ft.	1 x	3,600 =	3,600 x	18.5 =	666
Rotary Hoe	6 row	1 x	3,000 =	3,000 x	18.5 =	555
Cultivator	6 row	1 x	3,400 =	3,400 x	18.5 =	629
Combine + Small Grain Head	15 ft.	1 x	43,000 =	43,000 x	17.5 =	7,525
Wagon	185 bu.	4 x	1,425 =	5,700 x	18.5 =	1,054
Truck	425 bu.	1 x	20,500 =	20,500 x	15.0 =	3,075
Handling, Dryer, Storage[3]	---	- -	--- =	125,856 x	-- =	15,983
Housing	---	- -	--- =	--	-- =	1,000
Corn Head	6 row	1 x	9,800 =	9,800 x	17.5 =	1,715
Wheat Drill	12 ft.	1 x	2,480 =	2,480 x	18 5 =	459
Planter-Fert. Attach	6 row	1 x	9,000 =	9,000 x	18.5 =	1,665
		TOTAL =	$260,456		TOTAL =	$ 40,146

1/ For production, harvesting and hauling equipment, this fixed cost percentage was determined using the following assumptions: a) a 4-year trading schedule (8 years for trucks); b) a purchase price of 85% of list; c) tractors depreciate to 50% of list, combines to 45% of list, trucks to 25% of list and all other pieces of equipment to 40% of list; d) interest, taxes and insurance charge for tractors, combine and other equipment of 8.0%, 2.0% and 1.5% of average value, but for trucks 8.0%, 3.0% and 2.5% of average value. Useful life of dryer assumed to be 8 years; storage 15 years; handling equipment, 5-20 years.

2/ $1,000 was added to cover the annual fixed cost of housing for tractors, truck and machinery.

3/ Handling equipment includes 2 legs, center bldg., WH bins, scales; 300 bu. 10 p'/hr. C. F Dryer; 2-10200 bu and 2-31000 bu. bins.

MACHINERY DECISIONS - FIXED COSTS

Note there is only one question on this page: cell 650 at the lower right corner. Somehow, you need to arrive at the total of your fixed machinery costs. You may use the guideline figures on pages 26 thru 29. Remember, these are fixed costs and thus do not affect the decision criteria of the computer program. This cost will appear on your Profit and Loss Statement in the same manner as your Permanent Land and Permanent Labor cost. As a shortcut, you might use $60. times your acres for your base plan cell 650. On alternative plans using different machinery, you could compute the fixed costs only for the different machinery and adjust your base plan cell 650 figure accordingly.

YOUR PLAN

Machinery Item	Rating or size	Number of units		Unit List Price $ / Unit		Total List Price		Annual Fixed Cost 1/ %		Annual Fixed Cost 2/ $ / Year
			x		=		x		=	
			x		=		x		=	
			x		=		x		=	
			x		=		x		=	
			x		=		x		=	
			x		=		x		=	
			x		=		x		=	
			x		=		x		=	
			x		=		x		=	
			x		=		x		=	
			x		=		x		=	
			x		=		x		=	
			x		=		x		=	
			x		=		x		=	
			x		=		x		=	
			x		=		x		=	
								Total =		650

1/ 2/See Footnotes on previous page.

Machinery Decisions -- Fuel and Repairs (Before Corn Harvest)

OUR PLAN - 6 Row Conventional Fall Plow

Operations	Expected Repairs ($/A) 2/	Expected Fuel, Oil & Grease ($/A) 1/	Total ($/A)	Corn % Acres	Corn Adjusted Total ($/A)	Soybeans % Acres	Soybeans Adjusted Total ($/A)	Wheat Wheat ($/A)
Production								
Spread P & K	2.08	.14	2.23	33	.74	33	.74	0.
Disc Stalks	.20	.28	.48	100	.48	0	0	.48
Plow + NH3	1.48	1.02	2.50	100	2.50	100	2.50	0
Disc + Insecticide	.20	.28	.48	100	.48	100	.48	0
Disc + Herbicide	.20	.28	.48	100	.48	100	.48	0
Planting	1.23	.22	1.45	100	1.45	100	1.45	1.45
Rotary Hoeing	.05	.20	.25	50	.13	100	.13	0
Cultivate	.07	.33	.40	20	.08	120	.48	0
Tractors	1.25		1.25	100	1.25		1.25	.63
Production Total					7.59		7.51	2.56
Harvest and Haul Corn Silage	12.00	8.25	20.25					
Combine 3/	3.77	1.16	4.93	100	4.93	100	4.93	4.93
Hauling to Farmstead	.80	.55	1.35	100	1.35	100	.78	.78
Harvesting Total					6.28		5.71	5.71

1/ These figures would be approximately the same regardless of the size equipment used. The assumption is that larger equipment which covers more acres per hour also used more fuel per hour, but used about the same amount of fuel per acre as smaller equipment. Diesel fuel was figured at 50¢ per gallon, gasoline at 55¢ per gallon, and oil and grease at 15% of fuel cost. For instance, with plowing our figure is equivalent to about $2.08 per hour for each tractor and plow combination (2.24 A/hr. x $1.02/A = $2.28 hr.).

2/ With the plow, for instance, our figure would be equivalent to about $528 average annual repair cost on our 600 acre base plan. ($1.48 x 600 = $888).

3/ Dryer and handling equipment fuel and repairs are including in Drying Costs on page 6.

MACHINERY DECISIONS - FUEL AND REPAIRS

)UR TILLAGE PLANTING SYSTEM _____

Operations	Expected Repairs ($/A)	Expected Fuel, Oil & Grease ($/A)	Total ($/A)	Corn		Soybeans		Wheat
				% Acres	Adjusted Total ($/A)	% Acres	Adjusted Total ($/A)	Total ($/A)
PRODUCTION								
PRODUCTION TOTAL					651		652	653
HARVEST & HAUL CORN SILAGE			654					
HARVEST (CORN, SOYBEANS, WHEAT)								
HARVESTING TOTAL					655		656	657

These cost estimates are as of Spring, 1977.

Table 1. Selected Corn Production Field Equipment

Equipment Items	Width or Size	List Price	Annual Fixed Cost 18½% list	Implement Repair Costs[1]	Tractor Fuel, Lubrication[2]
			($/year)	($/acre)	($/acre)
Fertilizer Application					
Bulk Spreader	6 ton	$6600	$1221	2.09	.14
Primary Tillage					
To add NH_3 applicator, add $00 plus $25 per row					
Moldboard Plow	3-16"	2900	537	1.48	1.02
Automatic Reset	4-16"	3870	716	1.42	1.02
	5-16"	4840	895	1.23	1.02
	6-16"	5810	1075	1.04	1.02
	7-16"	6780	1254	1.18	1.02
	8-16"	7740	1432	1.25	1.02
(automatic reset)	10-16"	9690	1791	1.25	1.02
Chisel Plow	13'	1070	198	.95	.83
(mounted or trail,	22'	2740	506	.95	.83
3-bank)	21'	3260	605	.95	.83
Secondary Tillage					
Tandem Disc (rigid frame, 7 ½" spacing)	14'	4160	769	.20	.28
(rigid frame, 7 ½" spacing)	17'	5050	934	.20	.28
(fold-up, 7" spacing)	19'	5640	1044	.25	.28
(fold-up, 7" spacing)	24'	8450	1563	.27	.28
(fold-up, 7" spacing)	27'	9500	1758	.27	.28
(fold-up, 9" spacing)	32'	11260	2083	.27	.28
Offset Disc (24" blades)	14'	7920	1465	1.41	.83
Field Cultivator	13'	2630	486	.50	
	15'	3010	558	.56	.33
(mounted or trail,	22'	4420	817	.58	.33
6" spacing, impl. hitch	32'	10560	1954	1.00	.33
for trailing planter)	37'	12210	2259	1.05	.33

For dry chemical applicator, add $40/ft list, $7/ft annual fixed cost

1/ Tractors repairs must be added to these listed. Source of figures: Usage Costs for Tractors and Field Machines; C. B. Richey, Purdue University Extension Agricultural Engineer and D. R. Hunt, Professor of Farm Power and Machinery, University of Illinois.

2/ Source: Modern Concepts of Farm Machinery Management: Wendell Bowers, Professor of Agricultural Engineering, Oklahoma State University, 1970 edition.

These cost estimates are as of Spring, 1977.

Table 1. (continued)

Equipment Items	Width or Size	List Price	Annual Fixed Cost 18½% List	Implement Repair Costs 1/	Tractor Fuel, Lubrication 2/
			($/year)	($/acre)	($/acre)
Planting					
For liquid pesticide attachment, add $300 plus $55 per row					
For plateless planter, add $110 per row					
Conventional Planter (w/ dry fert attach)	6-30"	$ 9900	$1832	1.23	.22
	8-30"	13200	2442	1.08	.22
	12-30"	19800	3663	1.62	.22
(1 tool bar)	16-30"	26400	4884	2.18	.22
No-tillage Planter	6-30"	10200	1893	1.52	.28
	8-30"	13600	2523	1.49	.28
(w/ squadron hitch)	12-30"	20500	3785	1.59	.28
Weed Control					
Rotary Hoe	6-30"	1650	306	.02	.20
	8-30"	3300	611	.03	.20
	12-30	4700	865	.05	.20
	16-30"	6160	1140	.08	.33
Standard Cultivator	6-30"	2480	458	.07	.33
	8-30"	4070	754	.07	.33
	12-30"	6270	1161	.07	.33
	16-30"	8360	1547	.07	.33

1/ Tractor repairs must be added to these listed. Source of figures: Usage Costs for Tractors and Field Machines; C. B. Richey, Purdue University Extension Agricultural Engineer and D. R. Hunt, Professor of Farm Power and Machinery, University of Illinois.

2/ Source: Modern Concepts of Farm Machinery Management: Wendell Bowers, Professor of Agricultural Engineering, Oklahoma State University, 1970 edition.

These cost estimates are as of Spring, 1977

Table 2. Selected Harvesting Equipment

	List Price ($)	Annual Fixed Cost 17½% List ($/year)	Repair Costs[1] ($/bu)	Costs per bu. Fuel & lubrication[2] ($/bu)
Self-Propelled Combines				
Rated for stop unloading, Increase capacity 10% for on-the-go unloading.				
400 bu/hr unit, S.G.H. included (diesel, 125 bu tank, cab, air)	$45270	$8100	$ .020	$ .008
8-30" corn head, add	12680	2219	.005	
6-30" corn head, add	10860	1900	.006	
325 bu/hr unit, S.G.H. included (diesel, 115 bu tank, cab, air)	39640	6938	.020	.008
8-30" corn head, add	12680	2219	.009	
6-30" corn head, add	10860	1900	.006	
4-40" corn head, add	8712	1525	.006	
230 bu/hr unit, S.G.H. included (gas, 100 bu tank, cab, air)	27830	4871	.022	.014
4-30" corn head, add	8140	1425	.006	
2-40" corn head, add	4730	828	.006	
185 bu/hr unit, S.G.H. included (gas, 90 bu tank, cab, air)	20350	3754	.020	.014
3-30" corn head, add	5810	1012	.005	
2-40" corn head, add	4730	828	.004	

1/ Tractors repairs must be added to these listed. Source of figures: Usage Costs for Tractors and Field Machines; C. B. Richey, Purdue University Extension Agricultural Engineer and D. R. Hunt, Professor of Farm Power and Machinery, University of Illinois.

2/ Source: Modern Concepts of Farm Machinery Management; Wendell Bowers, Professor of Agricultural Engineering, Oklahoma State University, 1970 edition.

These cost estimates are as of Spring, 1977

Table 3. Selected Tractors and Hauling Equipment

Equipment	List Price ($)	Annual Fixed Cost* ($/year)	Operating Costs Repairs ($/100 mi)	Operating Costs Fuel & Lubrication# ($/100 mi)
Tractors (all diesel)				
All tractors priced without weights, duals or excessively large singles. Tractors in the 60-80 PTO Hp range are priced not including cab and accessories. Tractors in the 100-300 PTO Hp range are priced including cab, heater, and air conditioner; but without duals, large singles or weights.				
60 pto hp	$11550	$ 1906		
70 pto hp	13510	2229		
80 pto hp	14780	2440		
100 pto hp	21400	3530		
125 pto hp	24340	4015		
135 pto hp	26870	4433		
150 pto hp	28600	4719		
160 pto hp	30250	4992		
175 pto hp	33000	5445		
150 Four-Wheel Drive	42570	7025		
175 Four-Wheel Drive	42900	7079		
200 Four-Wheel Drive	44720	7378		
235 Four-Wheel Drive	51810	8549		
250 Four-Wheel Drive	52530	8667		
275 Four-Wheel Drive	56980	9402		
310 Four-Wheel Drive	62370	10292		
320 Four-Wheel Drive	64020	10563		
Trucks (Wide Price Range)				
Semi (800 bu)	52800 hi	7920	$ 51.	$20.50
Double Tandem (800 bu)	26400 lo	3960	22.	20.50
Tandem (425 bu)	36960 hi	5544	36.	13.75
18' w/hoist	14520 lo	2178	13.	13.75
Single Axle w/hoist				
14' (300 bu)	11220	1672	11.	11.00
12' (175 bu)	6336	946	5.	8.25
Wagons				
300 bu gravity, center dump	2805	519	8.	
185 bu, side dump	1568	290	4.	
125 bu, side dump	528	88	1.	
125 bu, auger	1452	264	4.	

* 15. % $ of list price for trucks
18.5% $ of list price for wagons
16.5% $ of list price for tractors

\# Reduce truck fuel costs 1/3 if road tax is not applicable.

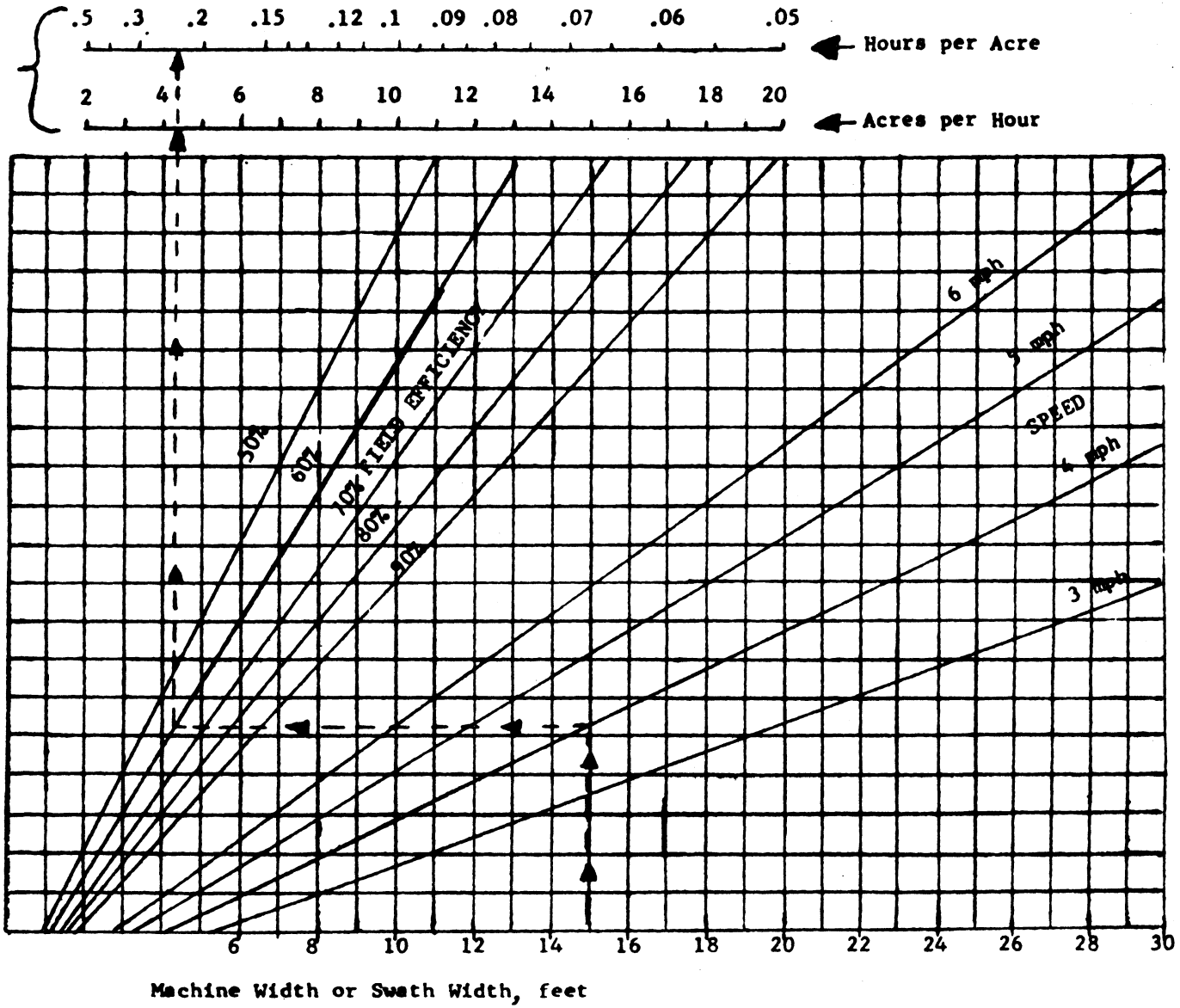
Table 4. Field Time and Direct Labor for Field Operations on Silty Clay Loam Soil (30 Inch Equipment, Unless Otherwise Stated)

Operation and Equipment Size	Tractor Size (Maximum PTOHP)	Width of Swath (Ft.)	Oper. Speed (M.P.H.)	Field Eff. (%)	Acres/ Field Hour (A/Hr.)	Men Per Field Hour (Men/Hr)
Spread P & K (6-ton)	70	24	5	75	10.909	1.33
Spread P & K (6-ton)	100	24	6	75	13.091	1.33
Plow 3-16	70	4	5	81	1.963	1.02
4-16	70	5.33	5	81	2.616	1.02
5-16	100	6.67	5	80	3.233	1.02
6-16	140	8	5	79	3.830	1.02
7-16	140	9.3	5	78	4.396	1.02
8-16	180	10.67	5	75	4.849	1.02
8-18	180	12	5	75	5.454	1.02
Plow 3-16 w/ NH_3 attach	70	4	4.5	79	1.724	1.08
4-16	70	5.33	4.5	77	2.239	1.08
5-16	100	6.67	4.5	75	2.729	1.08
6-16	140	8	4.5	73	3.190	1.08
7-16	140	9.3	4.5	71	3.610	1.08
8-16	180	10.67	4.5	70	4.074	1.08
8-18	180	12	4.5	70	4.582	1.08
Chisel Plow 10'	100	10	5	80	4.848	1.03
13'	140	13	5	79	6.224	1.03
Field Cultivator 15'	70	15	5	83	7.545	1.02
22'	100	22	5	81	10.8	1.02
32'	140	32	5	79	15.321	1.02
37'	180	37	5	77	17.266	1.02
Disc Harrow 14'	70	14	5	83	7.042	1.02
19'	100	19	5	81	9.327	1.02
24'	140	24	5	79	11.491	1.02
32'	180	32	5	78	15.127	1.02
Disc 14' (Herb & Insec)	70	14	5	79	6.703	1.10
19'	100	19	5	77	8.867	1.10
24'	140	24	5	75	10.909	1.10
32'	180	32	5	74	14.352	1.10

Table 4. (continued)

Operation and Equipment Size	Tractor Size (Maximum PTOHP)	Width of Swath (Ft.)	Oper. Speed (M.P.H.)	Field Eff. (%)	Acres/ Field Hour (A/Hr.)	Men Per Field Hour (Men/Hr)
Knife in NH_3 (5 knife)	70	12.5	4.5	80	5.455	1.08
	100	12.5	5.5	80	6.666	1.08
(7 knife)	140	17.5	5.5	80	9.333	1.08
Broadcast Spray	70	20	5	60	10.909	1.25
Conv Planter 4-40	70	13.3	4	71	4.590	1.14
6-30	70	15	4	69	5.018	1.16
8-30	100	20	4	67	6.497	1.16
12-30	100	30	4	65	9.455	1.16
16-30	140	40	4	63	12.218	1.16
Wheel Track Planter (w/ herb & Insec) 6-30	70	15	4	64	4.655	1.20
8-30	100	20	4	62	6.012	1.20
12-30	140	30	4	60	8.727	1.20
Field Cult & Plant (w/ H) 6-30	100	15	4	62	4.509	1.18
8-30	140	20	4	60	5.818	1.18
Rotary Till & Plant 6-30	100	15	4	62	4.509	1.16
8-30	140	20	4	60	5.818	1.16
Till Plant (H & I) 6-30	70	15	4	65	4.747	1.20
8-30	100	20	4	63	6.109	1.20
No Tillage Planter 6-30	70	15	4	67	4.873	1.16
8-30	70	20	4	65	6.303	1.16
12-30	100	30	4	63	9.164	1.16
Chisel Planter (H) 6-30	100	15	4	62	4.509	1.18
Rotary Hoe 4-40	70	13.3	8	88	11.380	1.02
6-30	70	15	8	86	12.510	1.02
8-30	70	20	8	84	16.291	1.02
12-30	100	30	8	82	23.855	1.02
Conventional Cult 4-40	70	13.3	4	80	5.170	1.04
6-30	70	15	4	78	5.673	1.04
8-30	70	20	4	76	7.370	1.04
12-30	100	30	4	74	10.764	1.04
16-30	140	40	4	72	13.963	1.04
Rolling Cult 4-40	70	13.3	6	80	7.738	1.04
6-30	70	15	6	78	8.509	1.04
8-30	70	20	6	76	11.054	1.04

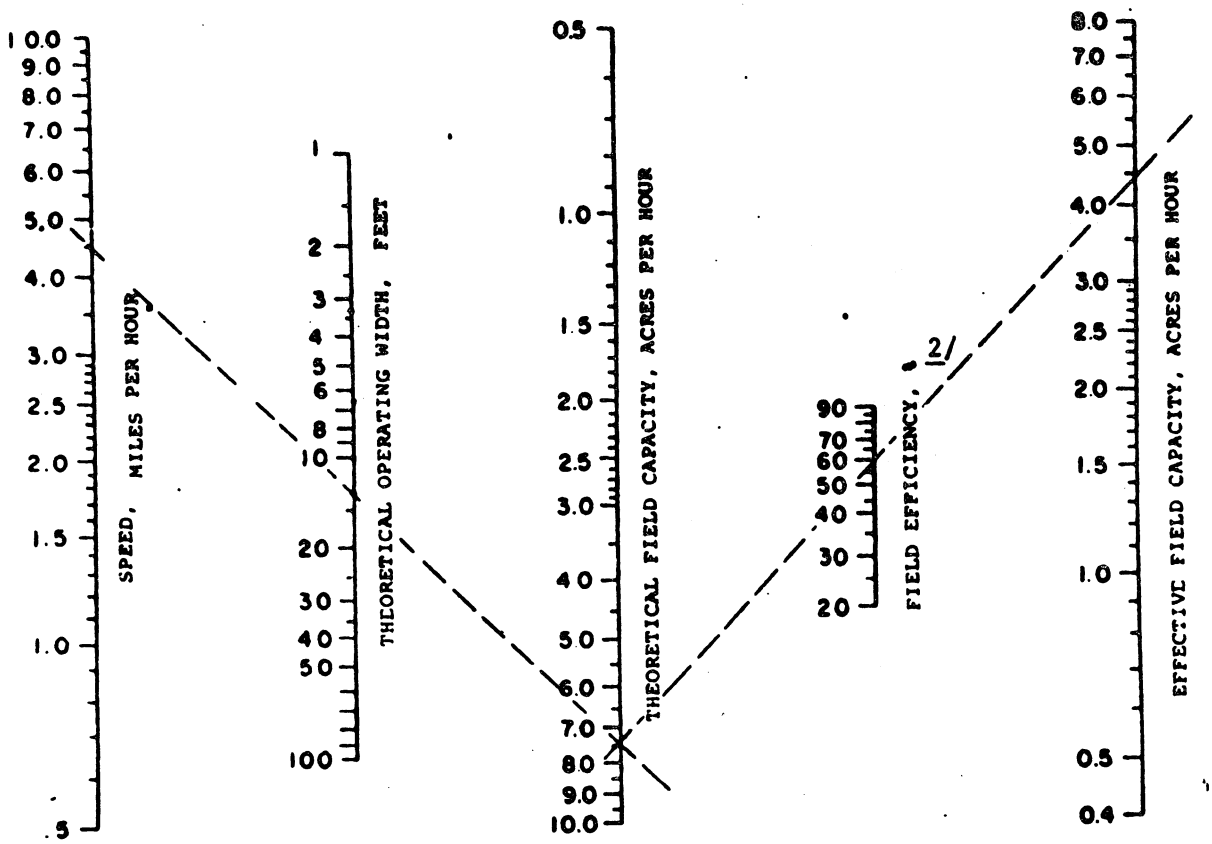
Table 5. FIELD CAPACITY CHART -- ANY MACHINE



Example:

A 6-row 30-inch planter operates at 4 mph and 60% field efficiency. Result - approx. 4.5 acres/hour or .22 hours/acre

MACHINE CAPACITY NOMOGRAPH[1/]



This nomograph can be used with a straight edge to determine machine capacity without calculations. The example illustrates a 13.3 ft. wide machine operating at 4.5 miles per hour with a field efficiency of 60%. Connect speed and machine width to intersect the center scale at the theoretical field capacity. Then connect theoretical field capacity and field efficiency to intersect the right hand scale at the effective field capacity.

1/ American Society Agricultural Engineers, D 230.2, Feb. 1971

2/ See machinery working rates on pages 31-32 for suggested field efficiency for various field operations

ALTERNATIVE PLANS INPUT FORM

NAME_____ BASE PLAN NO._____

Consider the earlier inputs in this book your base plan. Perhaps you would like to see what a few changes in that plan would do to the profit picture. The spaces provided below are for that purpose. For instance, you might wish to try a new machinery mix. Or you might want to test a change to longer working hours. You might want to change crop price relationships. Or you might like to know if you can farm more acres with your present equipment and labor. An entirely new print-out will be made for each alternate plan.

NEW PLAN NAME Suggestion: Use your last name plus a few words describing changes.

ALTERNATE PLAN #1. Make these changes from my base plan:

Change cell_____ from_____ to_____

Change cell_____ from_____ to_____

Change cell_____ from_____ to_____

Change cell_____ from_____ to_____

Change cell_____ from_____ to_____

Change cell_____ from_____ to_____

Change cell_____ from_____ to_____

Change cell_____ from_____ to_____

Change cell_____ from_____ to_____

Change cell_____ from_____ to_____

NEW PLAN NAME Suggestion: Use your last name plus a few words describing changes.

ALTERNATE PLAN #2. Make these changes from Alternate Plan #1:

Alternate Plan #1 now becomes your new base plan. If you wish to return to the figures on your original base plan, you must reverse the inputs you listed in Alternate Plan #1. For instance, if your original base plan stated $2 for cell 10 and in Alternate Plan #1 you changed that to $4, and now want to return it to $2, you say "change cell 10 from $4 to $2"- then you're back to where you started.

Change cell_____ from_____ to_____

Change cell_____ from_____ to_____

Change cell_____ from_____ to_____

Change cell_____ from_____ to_____

Change cell_____ from_____ to_____

Change cell_____ from_____ to_____